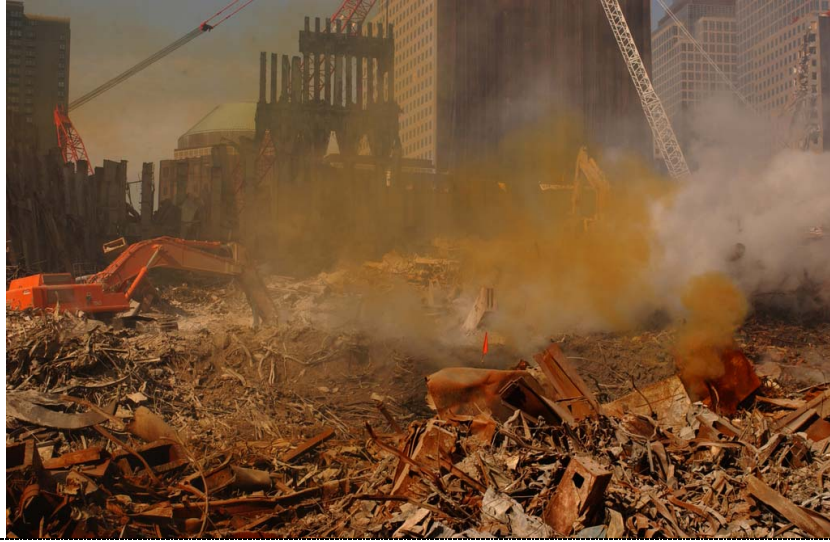


## Fuming Rust and Rapid Rust



**Figure 87.** Instant rusting into the air? Does fire cause instant dust? I don't think so.

(10/13/01)



**Figure 88.** Why did so much of this "steel" rust in less than two days? Why did some of the more-exposed pieces not rust much?

(9/13/01 entered) Source

The following two photos are a view east, from West street, and both are probably early afternoon. The two images appear to be taken on days not too far apart, if not back-to-back days, because the "stuff" on the truck is in a similar place. (Note the white buckets as well as the metal "coil" on top.) perhaps 9/12-13/01? The fire truck has dust on it more than dirt. I don't see WTC7, so I don't think it's 9/11. In the first photo, the white fluff is on the wheatchex in the foreground. So, it hasn't rained, yet. (First big rain I noted was on 9/14/01.) Road graders have gone through. They've only taken the first pass with the road-grader/street-cleaner, so that also supports it being early. Maybe they aren't on back-to-back days. That's a lot of stuff they'd need to cart away. But, they wouldn't be directing the search dogs for too long.

The flag is not in the above and there are the "day after" flowers on the truck. I've noticed flowers on vehicles that were affected. Perhaps they're for those who died in the vehicle? The rusty coils of stuff looks very rusty in the second photo below.



**Figure 89.** Rust (9/12-13?/01) Source



**Figure 90.** More rust (9/13?/01) Source:



**Figure 91.** Instant rust? But, not all of the exposed steel was rusted. (9/12?/01)





**Figure 92.** Presumably these cars are finally being towed away from that lot. Those wheels look fairly good which means they probably aren't steel.

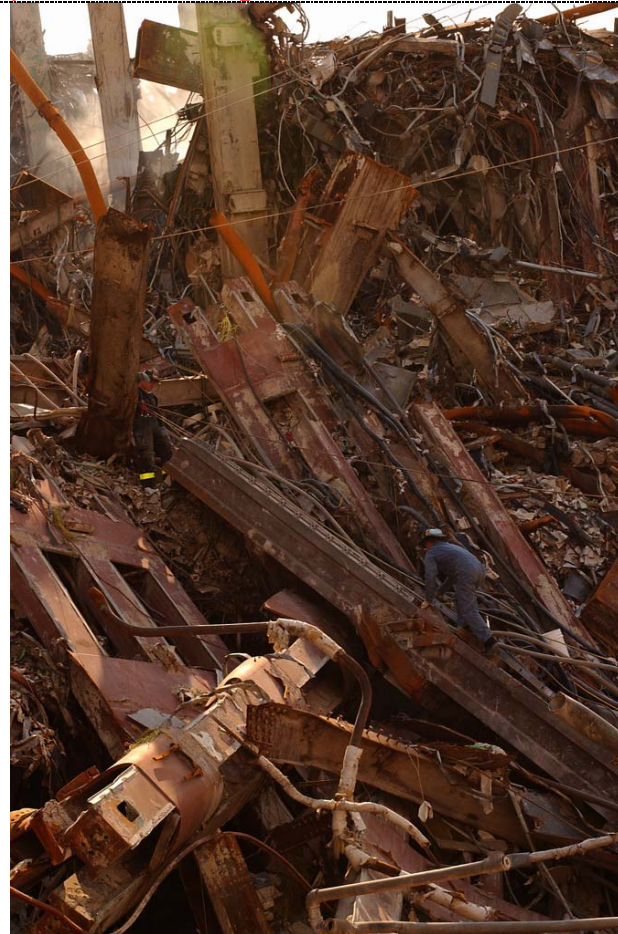
(9/?/01) Source:



**Figure 93.** Why is this one car rusted and the other is not?

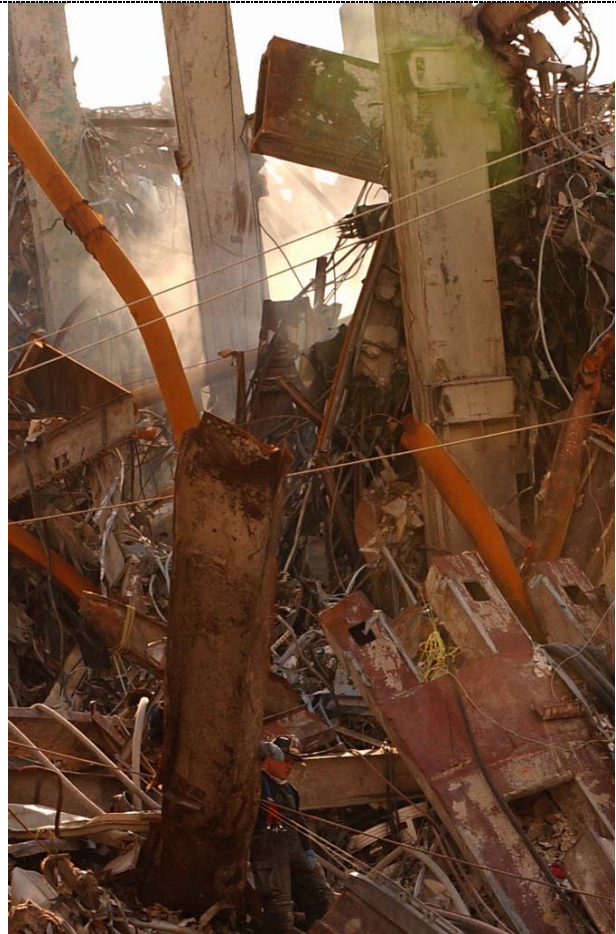
(9/?/01) Source:

### *Rusty Beams and Pipes*



**Figure 94.** Original photo. It appears that pipes either rusted a lot or not at all.

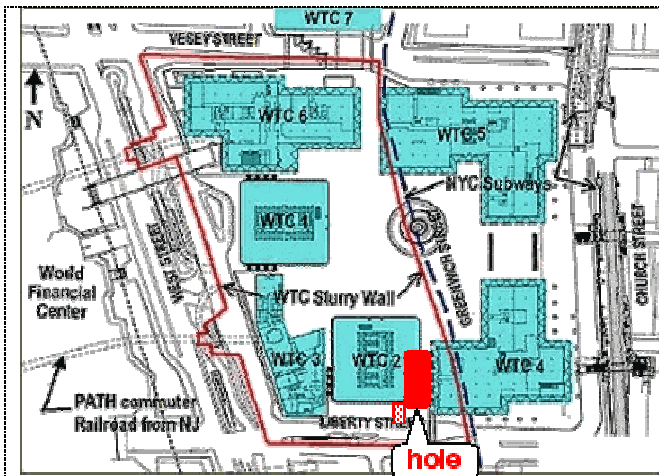
(9/16/01) Source



**Figure 95.** This is the upper-left quadrant of the previous photo.

(9/16/01) Source

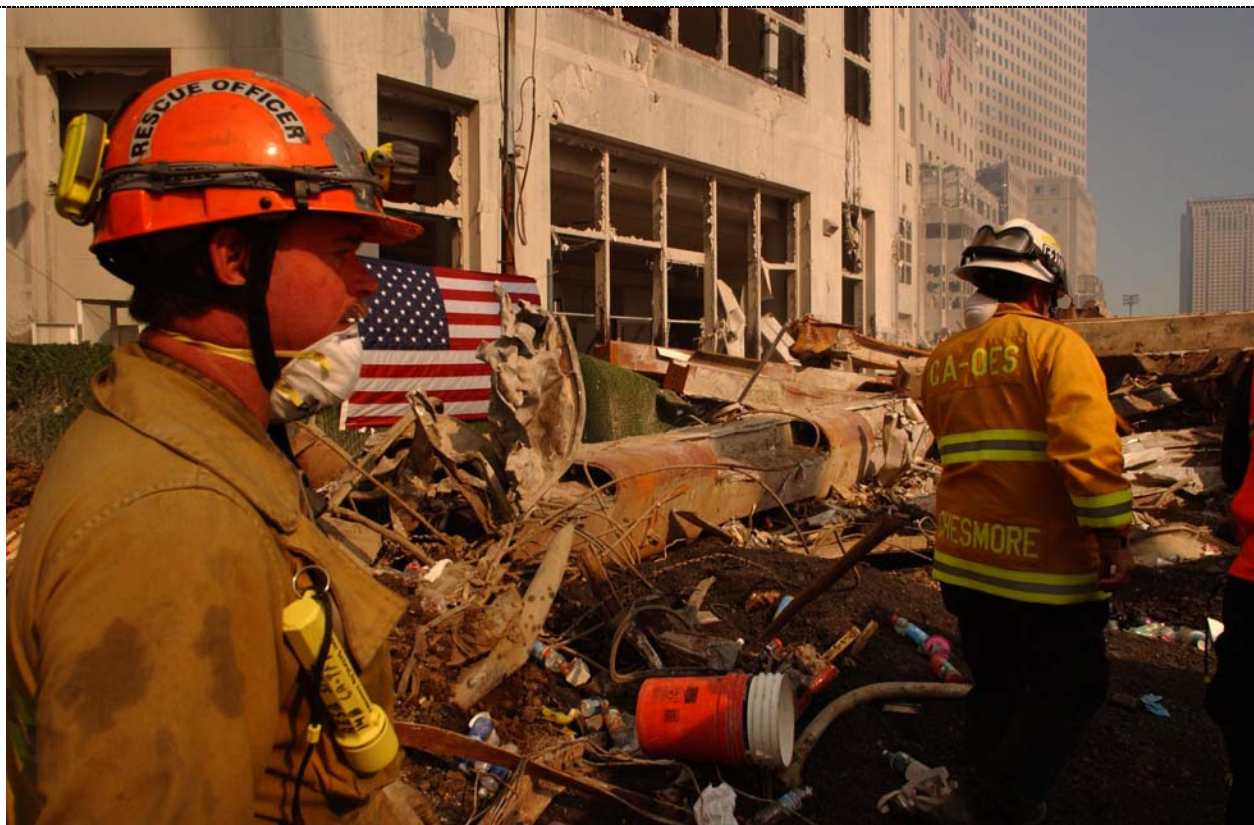




**Figure 96.** Solid red box locates the location in the figure to the left. This is the same location shown in the figure below.



**Figure 97.** The basement: of WTC2 (9/18/01):



**Figure 98.** Outer columns with spandrel plates wrapped around them. Also, fresh dirt has arrived. (9/16/01): [010916\\_5320\\_carpet.jpg](#)

## Fire, UL testing

**Table 5-5. Times to reach ASTM E 119 end-point criteria and ASTM E 119 hourly ratings.**

Test	Description	Times to Reach End-Point Criteria (min)						Standard Fire Test Rating (hr)		
		Temperature on Unexposed Surface		Steel Temperatures		Failure to Support Load	Test Terminated (min)	ASTM E 119-61	ASTM E 119-00	
		Average (Ambient +250°F)	Maximum (Ambient +325°F)	Average (1100°F)	Maximum (1300°F)			Rating	Restrained Rating	Unrestrained Rating
1	35 ft restrained ¾ in SFRM	---	111 (see Fig. 5-6)	66 (see Fig. 5-1)	62 (see Fig. 5-1)	(3)	116 <sup>(1)</sup>	1½	1½	1
2	35 ft unrestrained ¾ in SFRM	---	---	76 (Fig. 5-20)	62 (Fig. 5-20)	(3)	146 <sup>(2)</sup>	2	---	2
3	17 ft restrained ¾ in SFRM	180 (see Fig. 5-41)	157 (Fig. 5-41)	86 (Fig. 5-36)	76 (Fig. 5-36)	(3)	210 <sup>(2)</sup>	2	2	1
4	17 ft restrained ½ in SFRM	---	58 (Fig. 5-57)	66 (Fig. 5-52)	58 (Fig. 5-52)	(3)	120 <sup>(1)</sup>	¾	¾	¾

Notes: (1) Test terminated due to imminent collapse  
 (2) Test terminated when vertical displacement exceeded capability to measure accurately  
 (3) Did not occur

**Figure 99.** The fire testing done by Underwriters Laboratory (UL) did not demonstrate failure of the structure.

UL Fire Tests

(9/05): NISTNCSTAR 1-6? UL-Table5-5-No failur.jpg

**Rolf Jensen & Associates, Inc.**

**(RJA) (fire alarm)**

(R--Analysis of Active Fire Alarm Systems, WTC 1, 2, and 7)

**Underwriters Laboratory, Inc.**

(R -- Fire Endurance Testing of the World Trade Center Floor System (contract modification) *Also relates to*  
SB1341-03-Q-0281 - 7/10/2003  
**Fire models, ASTM E119)**



## Fire, Full-scale testing

<http://www.cooperativeresearch.org/context.jsp?item=a111099wtcfire#a111099wtcfire>

Context of 'November 10, 1999: North WTC Tower Suffers Last 'Significant' Fire Prior to 9/11; Bigger Fire Occurred in 1975'

### Context of 'November 10, 1999: North WTC Tower Suffers Last 'Significant' Fire Prior to 9/11; Bigger Fire Occurred in 1975'

This is a scalable context timeline. It contains events related to the event

<http://www.cooperativeresearch.org/context.jsp?item=a111099wtcfire&scale=0#a111099wtcfire>

**November 10, 1999: North WTC Tower Suffers Last 'Significant' Fire Prior to 9/11; Bigger Fire Occurred in 1975.** You can narrow or broaden the context of this timeline by adjusting the zoom level. The lower the scale, the more relevant the items on average will be, while the higher the scale, the less relevant the items, on average, will be.

<http://www.cooperativeresearch.org/context.jsp?item=a111099wtcfire#a111099wtcfire>

**November 10, 1999: North WTC Tower Suffers Last 'Significant' Fire Prior to 9/11; Bigger Fire Occurred in 1975**

<http://www.cooperativeresearch.org/eventedit.jsp?oid=1626004942-17511>

The North Tower of the WTC suffers a fire on its 104th floor. This is the 15th and last of what the National Institute of Standards and Technology later describes as “significant fires,” which occurred in the Twin Towers from 1975 onwards, and prior to 9/11. These fires each activate up to three sprinklers but are confined to just one floor.

<http://wtc.nist.gov/oct05NCSTAR1-4index.htm>

Kuligowski, Evans, and Peacock, 9/2005, pp. 7-11] Additionally, on **February 14, 1975** a major fire occurred, the result of arson, which began on the 11th floor of the North Tower during the middle of the night. Spreading through floor openings in the utility closets, it caused damage from the **10th to 19th floors**, though this was generally confined to the utility closets. However, on the **11th floor about 9,000 square feet was damaged**. This was about **21 percent of the floor's total area** (43,200 square feet) and took weeks to repair. Some parts of the steel trusses (floor supports) buckled due to the heat. **132 firefighters** were called to the tower in response, and because the fire was so hot, many got their necks and ears burned. Fire Department Captain Harold Kull described the three-hour effort to extinguish it as “like fighting a blowtorch.”

<http://www.epa.gov/wtc/panel/ATSDRFinal-report-lowermanhattan-02.pdf>

WTC Environmental Assessment Working Group, 9/2002, pp. 10 ;

[http://www.mishalov.com/wtc\\_firetest.html](http://www.mishalov.com/wtc_firetest.html)

New York Times, 5/8/2003;

<http://www.amazon.com/exec/obidos/ASIN/0805074287/centerforcoop-20>

Glanz and Lipton, 2004, pp. 213, 214, 324;

<http://wtc.nist.gov/oct05NCSTAR1-4index.htm>

Kuligowski, Evans, and Peacock, 9/2005, pp. 1] An article in Fire Engineering magazine will later summarize, “[A]lmost all large buildings will be the location for a major fire in their useful life. No major high-rise building has ever collapsed from fire. The WTC was the location for such a fire in **1975**; however, the building survived with minor damage and was repaired and returned to service.”

[http://fe.pennnet.com/Articles/Article\\_Display.cfm?Section=Archi&Subsection=Display&P=25&ARTICLE\\_ID=163411](http://fe.pennnet.com/Articles/Article_Display.cfm?Section=Archi&Subsection=Display&P=25&ARTICLE_ID=163411)

Fire Engineering, 10/2002. Building 7 of the WTC, which completely collapses late in the afternoon on 9/11, has also suffered a ‘significant’ fire in 1988, occurring on its third floor, with multiple sprinklers being activated.

<http://wtc.nist.gov/oct05NCSTAR1-4index.htm>

Kuligowski, Evans, and Peacock, 9/2005, pp. 12

## Fixing BT before taking apart



**Figure 100.** Wood panelling and paper don't burn hot enough to melt steel.

*Source:* [northlineexpress.com](http://northlineexpress.com)



**Figure 101.** These fires do not melt or significantly weaken steel.

*Source:* [Century wood stoves](#)



**File 2. No. 9110019, 10**

WORLD TRADE CENTER TASK FORCE INTERVIEW

LIEUTENANT BRIAN BECKER

Interview Date: October 9, 2001

**So I think that the building was really kind of starting to melt. We were -- like, the melt down was beginning. The collapse hadn't begun, but it was not a fire any more up there. It was like -- it was like that -- like smoke explosion on a tremendous scale going on up there.**

**Figure 102.** This first responder indicates he thought it was not a "collapse" due to fire but a disintegration of the building.

(10/9/01) Source [http://graphics8.nytimes.com/packages/html/nyregion/20050812\\_WTC\\_GRAPHIC/met](http://graphics8.nytimes.com/packages/html/nyregion/20050812_WTC_GRAPHIC/met)

**File 3. No. 9110041, 32**

WORLD TRADE CENTER TASK FORCE INTERVIEW

EMT JARJEAN FELTON

Interview Date: October 10, 2001

"...about that. I wasn't worried about the time. I looked for my partner, they was like "Make sure you have your partner, you two stay together." Cause they was stressing that. "Make sure your partner is with you at all times." So, we were together. After that I don't know what happened. I really don't know what's going on. Really, I'm not really sure what's going on. By that time it was, one was still on fire, that was the last one hit, but that was the first one to come down. I would say like, right when I got back to Vesey and North, that's when one came down. At that time, I just left my vehicle and everybody's just running up North End Avenue. Whatever avenue it is, everyone is running up. I remember seeing we're all running, running like There's a little park here, we're running alongside there. I seen firemen, I seen everybody. I seen all types of equipment laying down on the ground, I seen Scott Packs making that noise.

Q: The alarm?

A: Yeah, the alarm for like say, somebody got knocked out and they're laying motionless. That alarm is going off. I just heard that, you just seen a whole bunch of equipment all over the place."

**Figure 103.** What happened to the firemen whose Scott Packs had alarms going?

(10/10/01) Source [http://graphics8.nytimes.com/packages/html/nyregion/20050812\\_WTC\\_GRAPHIC/met](http://graphics8.nytimes.com/packages/html/nyregion/20050812_WTC_GRAPHIC/met)

**File 4. No. 9110506**

WORLD TRADE CENTER TASK FORCE INTERVIEW

FIREFIGHTER MICHAEL MACKO

Interview Date: January 25, 2002

"We were making our way down West Street. We got just about south of the north overpass, about 50 feet past that, when the first collapse occurred. I looked up. I was awed by -- I thought it exploded at the top. Everybody I guess at that point started running, and I luckily ran north where I came from to try to run out from under this -- which happened to be a collapse, realized I couldn't. I was going to stay under the overpass.

I realized I couldn't get out from under the collapse. I dove under an ESU truck that was facing north on the west side of West Street. I dove under that and waited for the building to come down. When the building did come down, I actually thought I was trapped, and the truck was blown off me, pushed off me, I guess. It was not there. At that point I was just really shocked and didn't know what was going on at that point. I didn't know -- I was really, really shocked."

**Figure 104.** Truck blown off = levitation?

(1/25/02) Source [http://graphics8.nytimes.com/packages/html/nyregion/20050812\\_WTC\\_GRAPHIC/met](http://graphics8.nytimes.com/packages/html/nyregion/20050812_WTC_GRAPHIC/met)

**File 5. File No. 9110145,**

WORLD TRADE CENTER TASK FORCE INTERVIEW

**DEW**



EMS CHIEF ZACHARY GOLDFARB

Interview Date: October 23, 2001

"So then she tells me or we discover that one of the buildings we think had collapsed. You really couldn't tell because there was just clouds and smoke, but it was like it wasn't there. I can't begin to tell you how weird this thing was and what a strange feeling this was."

...

"So the second tower comes down. Huge clouds, huge -- the same thing. It's like, hey, I've been here already, you know? Just horrible. The strangest thing is I don't remember noise associated with it. You would think that would be a very noisy kind of thing, and I just remember quiet. I don't know if like your ears disconnect or something? I don't know. I don't remember ground shaking, noise, any of that stuff, and I was right there. Much too close."

**Figure 105. Quiet**

(10/9/01) Source [http://graphics8.nytimes.com/packages/html/nyregion/20050812\\_WTC\\_GRAPHIC/met](http://graphics8.nytimes.com/packages/html/nyregion/20050812_WTC_GRAPHIC/met)

**File 6. No. 9110192,**

WORLD TRADE CENTER TASK FORCE INTERVIEW

CAPTAIN KARIN DESHORE

Interview Date: November 7, 2001

disappear

Can't breath

DEW

"As they are walking now they are tripping on the straps, so I told them -- again, I told them this is not right. You are going to fall and hurt yourself. You won't be able to help anybody and they took the long board and put it on top. My last recollection was of them going towards the building.

I asked at that time -- everybody else was with me still and I kept pushing them back and back and back, because I said what is this, a subway at the end of the overpass, because there is fire coming out of the ground. I didn't realize that that was a car already on fire over there."

...

"I had no clue what was going on. I never turned around because a sound came from somewhere that I never heard before. Some people compared it with an airplane. It was the worst sound of a rolling sound, not a thunder. I can't explain it, what it was. All I know is -- and a force started to come hit me in my back. I can't explain it. You had to be there. All I know is I had to run because I thought there was an explosion. I ran about 10, 12 feet up this little grassy hill and by then this force and this sound caught up with me already. I threw myself behind the last support column of the pedestrian overpass. It became pitch dark. The sound got worse, the force just kept passing me. At times I thought it was like an orange light maybe, coming past me.

I was unaware what was happening. I thought it was just a major explosion. I didn't know the building was collapsing. I was sitting with my left side towards the support beam, total darkness, total noise. I felt beyond alone. I felt desolated. I felt like, all I could say was people think about their families and whatever. All I kept saying to myself within me I don't want to die, I don't want to die, I don't want to die.

I can't tell you how long it was before it died down. I just felt like the darkness the loneliness and being alone was the worst thing I ever experienced in my life and not being able to breathe. There was no air. Whatever this explosion was simply sucked all the oxygen out of the air. You couldn't breathe and the feeling of suffocation, I can't explain no further on that.

I don't know how long it took. All of a sudden it was all over and the silence set in. Nobody cried, nobody talked, nobody made a sound. There was nothing. Absolutely nothing. You could open your eyes, it was pitch black. Breathing became a little bit easier but I just sat there. I didn't know what was happening and I just sat there. Again, I can't give you time periods, 5 minutes, 5 seconds or however long it might have been. Somehow over my right shoulder I hear this male voice, "is there anybody out there." I didn't know at first should I answer, should I not answer. Then I just said I'm over here, please don't leave me. The man said I'm over here, I can't see. That's when I opened my eyes. I said I can't see either. He said okay I'm going to talk. I said I'm going to talk and we will find each other. That's exactly what we did. We found each other. We kept talking to each other. We found each other. Nobody else answered, nobody else said a word. I was unaware that there were people from my unit laying all around me. They described it later on where they were.

I had a police van in front of me, about 6 feet that I remember being there. I saw a picture later on, it was totally destroyed. **Two feet to my right there was an overturned car, which I saw later on the pictures also.** I had steel beams all around me.

Like I said I found this gentleman and we held onto each other like little kids. By then we were coughing, vomiting, spitting. It was just -- we were trying to breathe. It was total darkness. We couldn't see anything behind us at all. We found about 5 or 6 more people and we held onto each other. Like little kids, we walked, as I found out later on, towards the water. Since I didn't know any of the location I didn't know there was a marina. We just walked in a direction where we could walk. We held onto each other. **We were all coughing, vomiting.** Some of us fell down. We would pick each other up. There might have been 6, 7, 8 of us by now. There were dead bodies laying everywhere, obvious signs of death."

...

"Again, I didn't see what was happening behind me, but knowing of all the explosions I thought here was another explosion coming **and this sound again and this wave of this force again.** I just jumped on the boat, closed the door with my left hand and just sank down to my knees. **Here whatever it was just came right at us again.** The sergeant is yelling at the one officer. The second officer was in the back with some of the people that had been in the back of the boat. I had no clue what was going on back there. The sergeant is yelling at the second officer, get the fuck out of here, get the fuck out of here. I'm sorry for using that word repeatedly. The poor guy behind the steering wheel is saying I can't go any place, we are tied on. That is about what saved our lives, because **this force came at us and hit us with everything. The boat was attempting to overturn and it kept hitting in the back against the pier.** Again, I was just -- by then I was resigned to die. I didn't mind dying because I was with other people, you know, and the guy behind the steering wheel just sank to his knee and the sergeant just stood at the other door. I have no clue how long that lasted. I was -- my back was towards it and as I'm sitting in this corner there I was just resigned, this is it, it can't happen to me a second time. We were -- this time was a difference. We were capable of breathing and I was with somebody."

**Figure 106.** This first responder indicates he thought it was not a "collapse" due to fire but a disintegration of the building.

(11/7/01) Source [http://graphics8.nytimes.com/packages/html/nyregion/20050812\\_WTC\\_GRAPHIC/met](http://graphics8.nytimes.com/packages/html/nyregion/20050812_WTC_GRAPHIC/met)

## File 7. No. 9110225,

WORLD TRADE CENTER TASK FORCE INTERVIEW  
FIREFIGHTER BERTRAM SPRINGSTEAD  
Interview Date: December 4, 2001

disappear

I remember somebody said, "You think you're having a bad day? Take a look out this window." We looked

out the Trade Center window, and there was the Vista Hotel, I guess it was there. I'm not really sure what building I was looking at, but I'm pretty sure it was the roof of the Vista. There had to be 30, 40 jumpers sprayed out all over the roof. I went, "Oh, Jesus, what the hell is going on here?"

As I was looking out the window, which is a total of five seconds, another jumper comes by, kind of like **clipped the edge of the roof and just vaporized. The guy just disappeared. There was no longer a body, just a big cloud of red.**

Q. Wow.

A. I was like, "I didn't need to see that." A total of five seconds I was looking out that window, total.

**Figure 107.** This first responder indicates he thought it was not a "collapse" due to fire but a disintegration of the building.

(12/4/01) Source [http://graphics8.nytimes.com/packages/html/nyregion/20050812\\_WTC\\_GRAPHIC/met](http://graphics8.nytimes.com/packages/html/nyregion/20050812_WTC_GRAPHIC/met)

## File 8. No. 9110150,

disappear

DEW

WORLD TRADE CENTER TASK FORCE INTERVIEW

CAPTAIN RAY GOLDBACH Interview

Date: October 24, 2001

Before we got back to the command post, somebody told us that the Mayor's group had now gone to 7 World Trade Center to the OEM command post. We went from where we were at that point, it was somewhere around Vesey or Vesey or something like that. We got into 7 World Trade Center, we took the escalator up to the second floor, then we were going to take the elevator. I think it was John Peruggia from operations, but I'm not sure, at that point told us we had to get out of that building. Everybody was evacuated in that building. We walked out of 7 World Trade Center, now following the whole group of people from City Hall who were somewhere ahead of us. I think we were on Washington Street near Greenwich Street, when the north tower started to collapse. I remember running and I think it was down Greenwich Street with John McLaughlin. We lost the Commissioner and the guy that he was with, the marshall. We got caught like in a white out, like a blizzard, and like dust, felt like insulation. Myself and John stayed together. We were trying to get down next to - we got down on the street and on our hands and knees crawled to the curb. I remember thinking to myself I thought we were going to get run over by a car. **We didn't know whether - I thought I saw the building collapsing, but I didn't believe it. I saw it disappearing into a cloud, but I thought maybe a couple of floors had fallen off.**

At that point we made our way about half a block up till we could eventually see. We got ourselves together. I said to him we got to make sure we find the boss. We went back into the cloud again, myself and John, and we walked around in this dust cloud. You couldn't see your hand in front of your face. Probably a couple of minutes, just calling the Commissioner. Eventually he and the marshall he was with called us. They had got across the street from where we were and into a doorway.

At that point I think we walked further up Greenwich Street and somebody brought us into another building where the Mayor's whole staff was. Everybody was tremendously in panic at that point. They decided that they were going to try to stabilize the situation in some way. They had to get away from this. We started working our way, I think it was up Broadway, I believe. Stopping at several places where the Mayor was looking for a place where we might be able to set up some type of - I don't know whether it was a command post or a place just to talk, and he was giving news reports as we were walking on the street. Every couple of minutes he would stop and give an update on whatever he had. Just what was going on as we were walking uptown.

We walked all the way up to 5 truck in a panic and haste situation. We just about forced our way into the fire house and we set up the - I guess the initial operations point from the Mayor's office at 5 truck. We were



there for -- prior to getting to 5 truck, the other tower fell down. I remember telling Tom the other tower fell down. I saw it disappear into a cloud again and he didn't believe me, because he was continuing to walk, but I remember telling him that, at some point during the walk while we were going uptown.

Q. You were referring to Commissioner Von Essen?

A. Yes, Commissioner Von Essen. We were in 5 truck for what seemed like a long time.

Q. Where is 5 truck?

**Figure 108.** This first responder indicates he thought it was not a "collapse" due to fire but a disintegration of the building.

(10/24/01) Source [http://graphics8.nytimes.com/packages/html/nyregion/20050812\\_WTC\\_GRAPHIC/met](http://graphics8.nytimes.com/packages/html/nyregion/20050812_WTC_GRAPHIC/met)

### File 9. No. 9110318,

WORLD TRADE CENTER TASK FORCE INTERVIEW

FIREFIGHTER FERNANDO CAMACHO

Interview Date: December 12, 2001

disappear

Can't breath

DEW

We went across the lobby of the hotel, going north, and we exited and made a right going towards the second tower, the south tower. We must have walked about 100-200 feet to revolving doors, which led into a hallway to where the mall was. I could see maybe 20, 25 civilians and I believe Ladder 25, which was about another 100 to 150 feet ahead of us.

As we came in through the revolving doors, the lights went out. A second or two later everything started to shake. You could hear explosions. We didn't know what it was. We thought it was just a small collapse.

As I looked straight ahead of me, I saw total darkness. Everything was coming our way like a wave. The firefighters that were ahead of us and the civilians that were ahead of us totally disappeared.

We turned around. We were all pretty much within ten feet of each other: lieutenant, chauffeur, roof, OV, can. As we turned around, I ran probably maybe ten feet and that's when the body of the building or body of the collapse hit, and we were flying through the air basically. I must have flown 30, 40 feet through the air.

Then total quiet. You couldn't breathe. You couldn't see anything. None of the equipment worked. My face piece was gone, flashlight, helmet. There were about maybe five or six civilians around us. We tried to get them out, as we tried to make our way out.

We did a perimeter search. Everything behind us was blocked and to our sides. We came back out basically through the same way we came into the building. We were facing the West Side Highway now, but there was a hole in the side of the building. So that's how we found our way out.

**Figure 109.** This first responder indicates he thought it was not a "collapse" due to fire but a disintegration of the building. (12/12/01) Source

[http://graphics8.nytimes.com/packages/html/nyregion/20050812\\_WTC\\_GRAPHIC/met](http://graphics8.nytimes.com/packages/html/nyregion/20050812_WTC_GRAPHIC/met)

**File 10. No.** We're going to cut across and go to 2." With that we both got blown in. That was it. It was pitch black and we were being thrown back down, 50 feet down a hallway.

But I recall it was right wall out for me. I tried to go back left for my members and it was not possible. We were now getting groups of civilians coming to the lights and the people were just coming to our light. Which saved the last people that we visually seen.

**They observed the explosion and the hallway disappeared.** They thought the hallway blew up where I had